CLAIMS

What is claimed is:

1. A medical implant device comprising:

a receiver member including a plurality of wall sections defining a longitudinal bore, wherein said wall sections have an inner threaded portion; and

a closure member including a substantially cylindrical body having a longitudinal axis and an outer threaded portion for threaded engagement with said inner threaded portion of said receiver member, wherein said outer threaded portion includes a trailing edge having at least one point crestward of the trailing edge's root that is rearward of the trailing edge's root relative to a direction of advancement when said closure member is being inserted into said receiver member, and wherein said outer threaded portion includes a leading edge having at least one point crestward of the leading edge's root that is forward of the leading edge's root relative to the direction of advancement when said closure member is being inserted into said receiver member.

2. The medical implant device of claim 1 wherein said receiver member also includes a transverse channel substantially perpendicular to said bore.

3. The medical implant device of claim 1 wherein said receiver member is a part of a bone fixation device.

4. The medical implant device of claim 3 wherein said bone fixation device is a bone screw.

5. The medical implant device of claim 3 wherein said bone fixation device is a spinal hook.

6. The medical implant device of claim 1 wherein said closure member is a set screw.

7. The medical implant device of claim 1 wherein said outer threaded portion defining a dovetail when viewed in section.

8. The medical implant device of claim 1 wherein an angle measured between the leading and trailing edges form an included angle, said included angle is between about 2 degrees and 40 degrees.

9. The medical implant device of claim 8 wherein said included angle is about 15 degrees.

10. The medical implant device of claim 1 wherein said outer threaded portion is configured as a helical spiral about said body, and wherein the thickness of said outer threaded portion at its crest varies along the helical spiral.

11. The medical implant device of claim 1 wherein said outer threaded portion is configured as a helical spiral about said body, and wherein the thickness of said outer threaded portion at its root varies along the helical spiral.

12. The medical implant device of claim 1 wherein said outer threaded portion is configured as a helical spiral about said body, and wherein a peak thickness of said outer threaded portion occurs crestward of said outer threaded portion's root, and wherein the thickness of said peak thickness varies along said helical spiral.

13. The medical implant device of claim 12 wherein said thickness of said peak thickness is thicker at a rearward portion of said helical spiral than at a forward portion of said helical spiral relative to the direction of advancement of said closure member when being inserted into said receiving member.

14. A medical implant device comprising:

a receiver member including a plurality of noncontiguous wall sections defining a longitudinal bore, wherein said plurality of noncontiguous wall sections include a female threaded portion configured as a helical spiral about a center longitudinal axis of the bore; and

a closure member including a substantially cylindrical body having a longitudinal axis and a male threaded portion for interlocking engagement with said female threaded portion of said receiver member, wherein said male threaded portion has at least one point crestward of its root that is thicker than its thickness at said root.

15. The medical implant device of claim 14 wherein said receiver member also includes a transverse channel substantially perpendicular to said bore.

16. The medical implant device of claim 14 wherein said receiver member is a part of a bone fixation device.

17. The medical implant device of claim 16 wherein said bone fixation device is one selected from the group consisting of:

a bone screw and a spinal hook.

18. The medical implant device of claim 14 wherein said closure member is a set screw.

19. The medical implant device of claim 14 wherein said male threaded portion is configured as a helical spiral about said body, and wherein thickness at said at least one point crestward of its root varies along the helical spiral.

20. The medical implant device of 14 wherein said male threaded portion is configured as a helical spiral about said body, and wherein the thickness of said male threaded portion at its root and the thickness of said male threaded portion at its crest vary along the helical spiral.

21. A noncontiguous receiver member and complementary closure member included in a medical implant device, comprising:

said noncontiguous receiver member having a plurality of noncontiguous wall sections separated by a slot, said wall sections at least partially defining a longitudinal bore, wherein said plurality of noncontiguous wall sections include a female threaded portion that forms substantially a helical spiral about a center longitudinal axis of the bore; and

said complementary closure member having a substantially cylindrical body portion and male threaded portion that forms substantially a helical spiral about a center longitudinal axis of the body portion, wherein a rearward peak of said male threaded portion is provided on its trailing-edge surface at some point crestward of its root, and wherein a forward peak of said male threaded portion is provided on its leading-edge surface at some point crestward of its root.

22. The noncontiguous receiver member and complementary closure member of claim 21 wherein said rearward peak occurs at a point on said trailing-edge surface that is closer to its crest than to its root.

23. The noncontiguous receiver member and complementary closure member of claim 22 wherein said forward peak occurs at a point on said leading-edge surface that is closer to its crest than to its root.

24. The noncontiguous receiver member and complementary closure member of claim 21 wherein said rearward peak occurs at the crest of said trailing-edge surface.

25. The noncontiguous receiver member and complementary closure member of claim 24 wherein said forward peak occurs at the crest of said leading-edge surface.

26. The noncontiguous receiver member and complementary closure member of claim 21 wherein said receiver member also includes a transverse channel substantially perpendicular to said longitudinal bore.

27. The noncontiguous receiver member and complementary closure member of claim 21 wherein said receiver member is a part of a bone fixation device.

28. The noncontiguous receiver member and complementary closure member of claim 27 wherein said bone fixation device is one selected from the group consisting of:

a bone screw and a spinal hook.

29. A medical implant device comprising:

a means for receiving a closure means, the receiving means including a plurality of noncontiguous wall sections at least partially defining a longitudinal bore, wherein said wall sections have an inner threaded portion; and

said closure means for engaging said plurality of noncontiguous wall sections, the closure means including a substantially cylindrical body having an outer threaded portion for threaded engagement with said inner threaded portion of said receiving means,

wherein said outer threaded portion includes a trailing edge having a root adjacent said body and having a crest at a point on said trailing edge that is furthest from a longitudinal axis centered in said cylindrical body when measured along a line perpendicular to said longitudinal axis,

wherein said outer threaded portion further includes a leading edge having a root adjacent said body and having a crest at a point on said leading edge that is furthest from said longitudinal axis centered in said cylindrical body when measured along a line perpendicular to said longitudinal axis,

wherein said trailing edge has a point between its crest and root that is rearward of the trailing edge's root relative to a direction of advancement when said closure means is being inserted into said receiving means, and

wherein said leading edge has a point between its crest and root that is forward of the leading edge's root relative to the direction of advancement when said closure means is being inserted into said receiving means.

30. A medical implant device comprising:

a receiver member including a plurality of noncontiguous wall sections at least partially defining a longitudinal bore, wherein said plurality of noncontiguous wall sections include a female threaded portion arranged as a helical spiral about a center longitudinal axis of the bore; and

a closure member including a substantially cylindrical body having a male threaded portion for interlocking engagement with said female threaded portion of said receiver member,

wherein said male threaded portion includes a trailing edge having a root adjacent said body and having a crest at a point on said trailing edge that is furthest from a longitudinal axis centered in said cylindrical body when measured along a line perpendicular to said longitudinal axis,

wherein said outer threaded portion further includes a leading edge having a root adjacent said body and having a crest at a point on said leading edge that is furthest from said longitudinal axis centered in said cylindrical body when measured along a line perpendicular to said longitudinal axis, and

wherein said outer threaded portion is configured to have at least one characteristic selected from the group consisting of

(a) said trailing edge has a point between its crest and root that is rearward of its root relative to a direction of advancement when said closure member is being inserted into said receiver member, and wherein said trailing edge's crest is no further rearward than a horizontal axis that is perpendicular with its root, and

(b) said leading edge has a point between its crest and root that is forward of its root relative to a direction of advancement when said closure member is being inserted into said receiver member, and wherein said leading edge's crest is no further forward than a horizontal axis that is perpendicular with its root.

31. The medical implant device of claim 30 wherein said threaded portion is configured to have at least characteristic (a) and the crest of said trailing edge is forward of its root.

32. The medical implant device of claim 30 wherein said threaded portion is configured to have at least characteristic (b) and the crest of said leading edge is rearward of its root.

33. The medical implant device of claim 30 wherein said threaded portion is configured to have both characteristics (a) and (b).

34. The medical implant device of claim 33 wherein said crest of said trailing edge is forward of its root and said crest of said leading edge is rearward of its root.